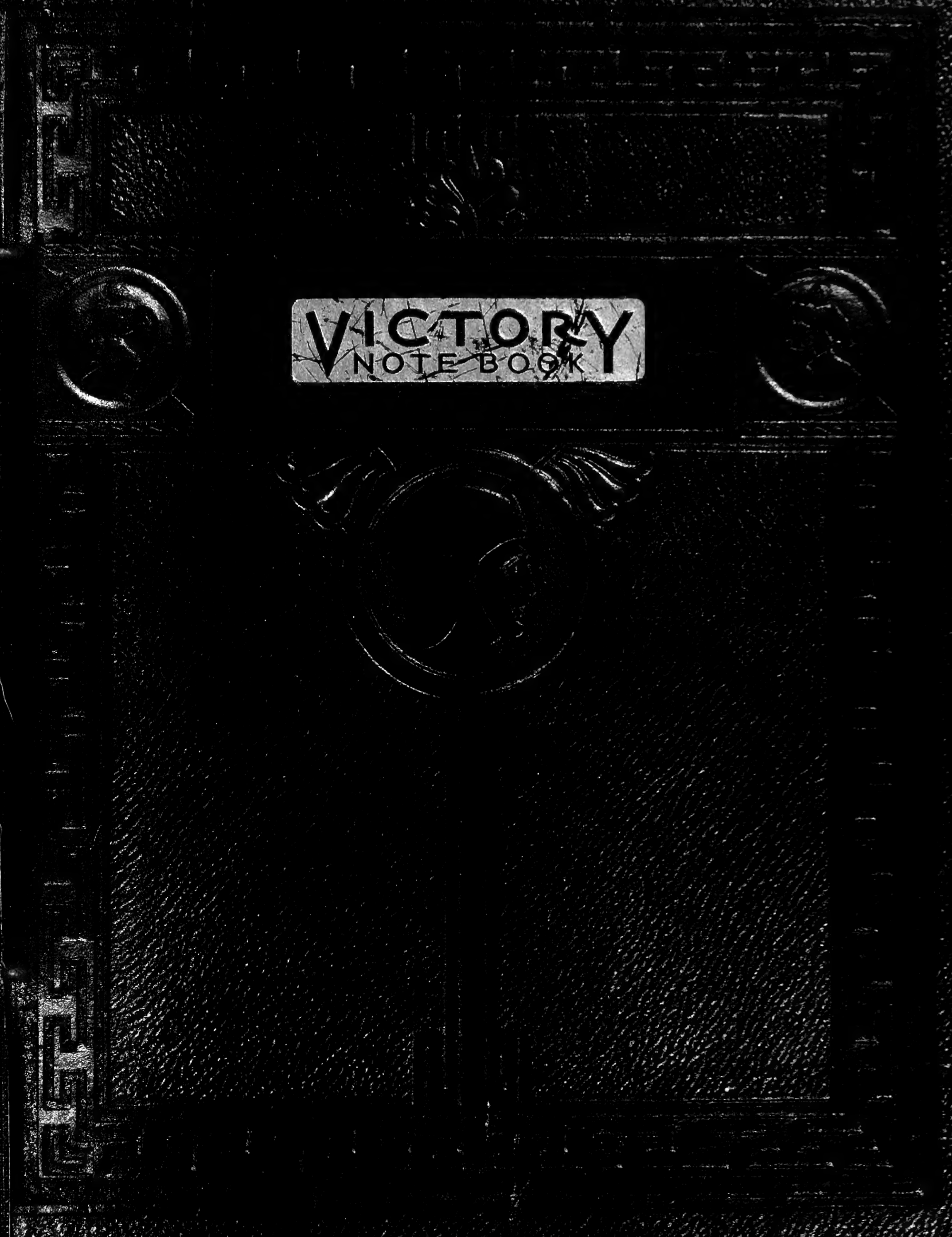

VICTORY
NOTE BOOK

21 Parts
79 [illegible]
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BUOY COLLECTING

1937 - 1940

"OUR FLOATING POPULATION"

by

George M. Gray

BUOY COLLECTING

On the Easterly end of Woods Hole is a small harbor called Little Harbor. This harbor is readily accessible to Vineyard Sound. At this harbor is a long dock or wharf. There are several buildings on this dock, and at the time of my first collecting a very pleasant, genial man, Mr. Clarke, was at the head of this local buoy dock or station, sometimes called "Buoy Yard". He reached the retirement age soon after I began collecting there, and alas to my sorrow has since joined that great silent majority. He was especially kind to me as indeed were all the men about the dock or on the two rugged strong boats, steamers which brought in the old buoys to be cleaned and repainted and then took them back again.

There were a number of different kinds of buoys of various shapes and sizes, Bell buoys, whistling buoys, light buoys, can buoys, spar buoys, "snoot" or cylinder buoys, so large that one could stoop over and almost walk up inside, and some you couldn't. Some of these larger buoys weighed several tons. My neighbor, Harry Hodgkins, across the street from where I live, one day brought me a brittle starfish for identification, and as he told of different animals found off the buoys, I became interested and the following notes are the results of my "Buoy Collecting"---first a list of the buoys and localities where from, dates, etc. next a list of animals and plants found on each buoy. Some of these buoys were out a few months, some a year or more, then brought in and cleaned, dried, and painted, then taken back to where they belonged.

There were places where buoys could not be set, and "Light ships" were anchored in these places and men lived on these ships, certain times off, certain times on, a rather lonely life.

It is astonishing what a number of different kinds of animals were found on these buoys. If one could devote more and intensive time to this collecting, much more could be learned of our "Floating Population".

LIST OF BUOYS

1. Chatham Light Buoy, April 23, 1937
2. Nausett Buoy, May 20, 1937
3. Pollock Rip Channel Buoy, May 21, 1937 2 sheets
4. Buoy May 24, 1937
5. Bell Buoy, Vineyard Haven, May 25, 1937 2 sheets
6. Nobska Light Buoy, June 3, 1937
7. Nun buoy, From "Hole", June 22, 1937
8. Hedge Fence Buoy, June 25, 1937
9. Great Round Shoal #1, June 25, 1937 2 sheets
10. Cape Cod Canal,, June 28, 1937
11. Buoy from near Penzance, June 29, 1937
12. Buoy and sinker, Wareham River, July 1, 1937
13. Buoy, Quick's Hole, July 2, 1937
14. Buoy, New Bedford Harbor, July 6, 1937 (can buoy)
15. Buoy #2, 3 miles off No Man's Land, July 7, 1937 2 sheets
16. Half Moon Shoal Buoy, July 8, 1937 3 sheets
17. Nun or can Buoy, July 13, 1937
18. " " " ", Quick's Hole, July 15, 1937, 2 sheets
19. Four cigar shaped buoys, between Norman's & Gay Head, July 19, 1937
20. Muskegat Channel Buoy, July 20, 1937
21. Cultivator, Whistling Buoy, July 22, 1937--been set about 2 years
22. Buoy from New Bedford Harbor, July 22, 1937
23. Hen and Chickens Light Buoy (Miss Mayo), July 26, 1937 (17 ft.shoal) 2 sheets
24. Mosher Ledge Gas Buoy, July 28, 1937--3 miles out, New Bedford
25. Gas Buoy, Great Round Shoal, July 29, 1937
26. Block Island Buoy-* Long Island - Aug. 4, 1937
27. Light Buoy, Handkerchief Shoal, Aug. 25, 1937
28. Buoy from Dumping Ground, B.B. Aug. 26, 1937
29. Squash Meadow, Spar Buoy., Sept. 16, 1937, been out about 14 mo. 2 sheets
30. Pollock Rip Channel Buoy
31. Bell Buoy Stage Harbor, Sept. 24, 1937--set about 8 months

LIST OF BUOYS

32. Pollock Rip, Dec. 18, 1937, Bell Buoy
33. Cylinder Buoy, Cross Rip No. 1, March 24, 1938, Been set one year
34. Tubular Light Buoy, off Naushon, May 14, 1938
35. Nashuena Tube Buoy, May 20, 1938
36. Small Buoy, Fisher Ground off Nantucket, May 25, 1938
37. Rosen Ground, Buoy off Nantucket, May 25, 1938
38. Three buoys from off Nantucket, No snoots, May 25, 1938
39. Two small buoys off Nobska June 15, 1938, Set about a year
40. Snoot Light Buoy, Pollock Rip, June 17, 1938
41. From off No Man's Land, Buoy, June 20, 1938
42. Short tube light buoy off Gay Head, June 21, 1938--Squibnocket
43. Nausett Light Buoy, a large "Snoot" Buoy, June 25, 1938 2 sheets
44. 2 small buoys off the Canal, B. B., June 30, 1938
45. Pollock Rip Striped Buoy, July 8, 1938
46. Chatham "Snoot Buoy", July 27, 1938, 2 sheets
47. Nashuena Buoy, Vineyard Sound, July 28, 1938
48. Great Round Shoal Buoy, Aug. 2, 1938
49. Buoy off No Mans Land--Snoot, Aug. 12, 1938
50. Snoot Buoy, South Shoal, off Nantucket, Aug. 15, 1938
51. Large Light "Snoot" Buoy from Great Round Shoal, Aug. 20, 1938
52. "Snoot" Buoy off Nashuena #4, V. S., Aug. 22, 1938 2 sheets
53. Buoy, Quicks Hole, Aug. 23, 1938
54. Small Buoy from Canal, Aug. 23, 1938
55. Hen and Chickens Light Buoy, June 16, 1939
56. "Snoot" Buoy, Nantucket Channel, New Place, Sept. 20, 1939 2 sheets
57. List of specimens brought in on "Snoot" Buoy off Gay Head, Sept. 21, 1939
58. Whistling Buoy, Wasque Shoal, Muskegat, June 14, 1940
59. Pollock Rip Tube Buoy #6, July 19, 1940
60. "Snoot" Buoy, Cultivator Shoal, July 24, 1940
61. Tube Buoy, and large Buoy, no tube, Aug. 14, 1940
62. Small Buoy, Vineyard Haven
63. Traffic Gas Buoy #6, Set one year

BUOY COLLECTING April 23, 1937

Tuesday, April 20, I went down to the U. S. Buoy Yard at Little Harbor. The men had just brought in a large Buoy which had been set a year off Chatham Light. It had a number of Mytilus edulis attached to it. These varied in size from the very small-less than [illegible]" in length-to a few 1½" long. The buoy was not like some-nearly completely covered with them but seemed to be in patches or mats both on the outside and the inner surface of the hollow part of the cylinder end of it.

I was quite surprised when on scraping off some of these mussels to find underneath, many small specimens of Anomia aculeata and Saxicava arctica. They were so covered over by the Mytilus as to be hardly seen from the surface view of the mussels. There were bare spaces where nothing was growing and other spots covered with the homes or burrows of the little Amphipods Jassa marmorata. There were literally thousands of these little crustaceans all over the buoy, even in the crevices between the molluscs. There may have been other species of Amphipods but I did not note them at the time. There were scattered individuals of both Anomia and Saxicava over the buoy, but the great preponderance were under the mussels. I wondered they were not smothered by the Mytilus. They must have settled first, and the mussels followed afterward. There were some patches of Bryozoa scattered over the buoy. Some were round in shape, flat, and about the size of a nickel and larger while others were irregular in shape, superficially they resembled Membranipora. Some growths of Bryozoa reminded me of Alcyonium as they were more or less fleshy like that coral, one piece sent up to knob like projections, the others were like rounded cookies rounded and higher in the middle and rather inclined to a flesh color. They expanded beautifully but contracted some in the killing. There were few worms. A buoy which had been off No Man's Land 14 months had more and much larger mussels(twice the size), more worms Nereis pelagica, and Lepidonotus squamata, Ophiopholis aculeata, and a very small green urchin, more taken.

Nausett

MAY 20, 1937. NATSETT BUOY

Been set one year.

Mytilus edulis.

Saxicava arctica.

Anomia a$\overset{c}{\text{b}}$*uleata*.

Crepidula 1.

Pecten ilandicus, 1.

Doris 2 sp.

Aeolis 4 sp.

Bryozoa (soft)

Ascidians, 2 or 3.

Barnacles, few.

Nereis pelagica.

Polynoe squam:

Harmothoe.

Asterias vul:

Ophiopolis acu:

Dendronotus 1 sp.

Hydroids, 2 or 3 species.

Jassa marmorata.

Algae 2 or 3 species.

Metridium dianthus.

MAY 21, 1937 POLLOCK RIP CHANNEL BUOY

No. 2.

Never had I seen such a great number of *Caprella* of all sizes.

18.

There were some *Amphipods*/ and *Lepidonotus*, 19.

There were also *nudibranch* eggs, several clusters that I noticed.

These were probably of *Dendronotus*, different from *Aeolis*.

Greatest length of *mytilus* and *saxicava* $5/_8$ in. Extremely abundant among and in *Tubularia* stalks.

Very small anemones.

MAY 22, 1937. POLLOCK RIP CHANNEL BUOY.

Tubularia crocea, bunches mostly headless.
Tubularia sp. One bunch live, much smaller than other .
Sagartia sp? Numerous very small.
Anemones, possibly Metridium sp.
Bryozoa, gelatinous and shelly.
Balanus sp.
Mytilus ed: very small. up to $\frac{3}{4}$in. possibly a little larger, but no large ones.
Saxicava, inumerable. and
Anomia aculeata.
Pecten mag: 1. Very small, numerous. Threadlike. Evidently a tube forming worm . Very slim, exuding.
Phyllodoce?
Nereis pelagica, a few. A number of what look like -
Dendronotus arborescens, from less than $\frac{1}{2}$in. up to about 7/8 or nearly an inch.
Aeolis sp. A few, not -E.Papillosa. Several about $\frac{1}{2}$in. to 7/8in or so.
Aeolis. A very small pinkish. Very few.

Most of the material was on the inside of the hollow cylinder, but the thing most impressive was the immense number of Caprella. I should say at least 3 species were represented. Possibly only 2 C.geometria and C.septentrionalis. Some of these reached a length of $1\frac{1}{4}$ in. exclusive of antennae, (34mm). Antennae nearly am inch (about 25mm) long. I think they were the largest I ever saw. There were very small ones gathered in bunches in among the stalks of Tubularia, usually near the upper end of the stalks. Some of these were very small ~~but~~ not much more than out of the egg. From 4mm. up. As the moisture gradually left, the larger Caprella felt the dryness; crawled out of the Hydroid stalks and hung down like a youngster hanging by his hands. Many had died and dried in this way, and it gave a peculiar look to the inside of the buoy.

Gas Buoy Brought in by *Arbutus* 5/24/37

Did not learn where from, but could not have come from far off shore, for it had *Botryllus* growing on it in fair amount.

Jassa marmorata was common
Hydroid species? too frayed to identify by me
Halichondria sp., small specimens
Hydroid stems, dead, covered with burrows of small amphipods, and in among these were numerous bunches or clusters of mollusc eggs, what species I do not know at this time.
Nereis pelagica, small
Worm, small unidentified
Shelly *Bryozoa*
Lepidonatus, small
Hydroid, sp?, densely "fruited"
Gelatinous Bryozoa
Panopeus texana, small
Molgula sp., one spec.
Serpula (Hydroides) had undoubtedly occupied some of the shelly or encrusting Bryozoa

There were some very small *Amphipods* but did not make out if they were young of *Jassa* or a separate small species
The Buoy had been out in the sun some hours and material was rather dry.

VINEYARD HAVEN BELL BUOY

Brought in to the Buoy yard about 10 A.M. May 25, 1937. I did not know of it until about 5 P.M. I immediately went to the Buoy. A very warm day, and what fauna was left on the outside was pretty well dried, but inside the hollow cylinder (*Snoot* the men call it) was a luxuriant growth of *Mytilus* and *Tubularia crocea*. A number of *Heads* were still on the stalks. It was a beautiful sight, these bunches of pinkish *Tubularia* interspersed in the black mussels. Great clusters of the latter hung from the upper side. It reminded me of Longfellow's "Gardens and Grottos of the ocean", but it was very muddy at the lower end, and much mud had worked up on the inside, so much so that numbers of *Amphitrite* ornata were living in among the mussels and had made mud tubes in which to dwell; associated with them was the little mud crab *Panopeus* (*neopanopeus*) *texana*; *Nereis pelagica* was here also and a small dark green worm, name? was occasionally found. The amphitrite and Nereis were under size, but as the buoy had been set only a year this may account for smaller size.

Outside of buoy was covered with small amphipods and their burrows, dead and dry. Most of the buoy had been cleaned of animal life before brought in, but around the rivets and joints, and devices was dead and dry growths of *Tubularia*., and underneath it the amphipods had congregated for moisture and protection.

LIST OF SPECIES FOUND ON VINEYARD HAVEN BELL BUOY

Leucosolenia a few clusters

Grantia, 1 spec. noted, but undoubtedly there was more (later on found more)

Tubularia crocea, abundant

Metridium, quite a number, those on the upper side of chamber hung down from 6-8"

Bryozoa, shelly-

Nereis pelagica, small to medium size

Amphitrite ornata, numbers

Small green worm, not identified

Hormothoe, I believe a few

Lepidonotus squamatus, very many some small to medium size, while most or many of them were about the largest I ever saw (2" in length and broad in proportion

Mytilus edulis Some of the Mytilus were nearly 3½" long, and 1½" wide very large for less than one year old.

Crepidula fornicata

Anomia simplex, mostly large

Anomia aculeata? doubtful

Crepidula plana? "

Arca transversa, a number, small

Astryrus lunata, some, not abundant, later on in a more intensive search Many were found.

Panopeus tex. several, probably many more that escaped

Barnacles, mostly in upper part of chamber, had shelly base, were not B. eburneus--B. crenatus? Might have been other species.

Caprella, common

Other amphipods very abundant

Ciona tenella 1

Molgula 1

Pinnotheses mac. 2 ♀ probably from the Mytilus, later on I opened up all of several Mytilus and took out 6 ♀ and 2 ♂. The two ♂ were in the same mussel, while the 6 ♀'s were all in a separate mussel each. They were all rather small sized for the species.

Crepidula fornicata with eggs.

Nobska Light Buoy   Put out in Jan. 1937
June 3, 1937

This buoy was brought in during the day but I did not learn of it before it had been pretty well cleaned and the forms left were rather dry or spoiled. Found some material at night, and made another visit in the morning, but a thunder shower in the night did not improve the material. A few small Amphipods were still alive in crevices and sheltered places. There were innumerable dead on the wharf, having succumbed to the adverse conditions. In the short marine growth hydroids and algae, undoubtedly were thousands living when the buoy was first taken from the water.

List of animals noted:

Tubularia crocea, very much, ran shorter stems than on some other buoys.

Sponges, saw none

Nereis pelagica, a few, were probably many more when first from water.

Lepidonotus squamatus, several, noticed, mostly small to medium size.

Astreus lunata, noticed a number in the scrapings but was surprised that they were not more abundant.

Mollusc eggs, sp?

Mytilus edulis, many, very small to 2½" long

Barnacles, Balanus sp., mostly very small a number

Balanus eburneus one?

Small amphipods species not identified at this time-thousands

Did not observe any Caprella

A few algae, several species, not identified at this time.

There may have been Bryozoa, crissia and encrusting forms but conditions were not good for accurate observations. Altogether a rather unsatisfactory record.

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A BUOY (CAN OR NUN) BROUGHTIN FROM THE "HOLE"

June 22, 1937

I was unable to see this buoy until the next day. Nearly all the material had been scraped off before it had been brought in and it had been subjected to a drenching rain before I saw it.

There were a number of small *Balanus sp.*, a few small *Mytilus*, numerous dark or mottled *Amphipods*, some algae, not identified. It is probable that there were many more *Mytilus* and larger, but they were not brought in, and undoubtedly a greater variety of other material was scraped off and thrown overboard before the buoy was landed.

* * *

HEDGE FENCE BUOY June 25, 1937

This Buoy had little on it except Parypha crocea and Balanus sp. So much of the hydroid all over the lower end of the "snoot" that the Supt. says, "Nothing on it but whiskers", and from appearances he was about right. I brought some of the whiskers home and put them in sea water thinking that some animal life might show up when the water got stale, as frequently happens. The buoy was a different shape than the others had been. The "snoot" had a small opening at the low end of a foot or more. Then suddenly widened  so that one could not well get in to see what was inside. It was dark in there and things could not be seen, but scraping with a hoe got practically nothing but a little mud, shall try a search light tomorrow.

June 26--Tried the flash light, Bryozoa patches the only new thing I noticed, later found a few Caprella; Buoy had been set probably 6 months.

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JUNE 25, 1937. LIGHT BUOY FROM GREAT ROUND STATION OR SHOAL. #1.

Brought in June 24, 1937.

As usual most of the outside material had been scraped off before it was brought in. But the inside of the 20ft. cylinder or "snoot" contained in most cases a duplicate of the outside material except the long streamers of algae. The lower end of the "snoot" had the greatest abundance of animal life decreasing and growing smaller in size as it neared the upper end. Where, most of the life was represented by small acorn barnacles, Balanus sp. and very young Saxicava..Arctica perhaps some very young mytilus. I took some stuff last night but as it was getting late, I delayed till morning the real collecting.

In putting your head inside the "snoot" in the a.m. you could plainly hear the creaking like noise made by the balanus and caprella as they moved their members each in its own peculiar way. Both reaching out, one for food, the other for something to get hold of, Perhaps saxicava was moving restlessly. Things were getting dry. The whole was a subdued current of creepy sound.

List of Material

Sponges, none.
Hydroids, Tubularia crocea, many bunches outside and in.
Hydroids, campanularia?
Bryozoa. A round colonial form, infrequent encrusting.
Bryozoa, a fanlike form something like B.flabellata but different. Identified later. Bugula murrayana.
Metridium, quite small spc. but plentiful, scattered all thru' among the barnacles and saxicava and other forms.
Worms, mostly Harmothoe sp. Some with a dorsal red stripe, others with a dorsal black or dark stripe, others greyish in color. The surprising thing to me was that I noticed no typical L.Squamata.

Worms otherwise were a long slender kind something like Phyllodice family. Seemed to have a slimy sort of mucuous like tube, these were not readily seen at first.

JUNE 25, 1937. GREAT ROUND SHOALS #2.

But as the water got stale they crawled out of their hiding places and crawled around the sides of the dish near the surface.

Nereis pelagica was not seen.

Molluscs, no shell bearing Gastropods were seen.

Doris, 2 or 3 species were taken. One species I had never taken before. The largest spec: was nearly $\frac{3}{4}$in. long and more or about $\frac{1}{2}$in. wide with a broad chocolate colored dorsal stripe, and a mid-lateral stripe on each side od same color, while the anal gills were also a chocolate color like the stripes. The body color was white or creamy. The smallest spec: was a fraction over $\frac{1}{2}$in. long, same color as fist. They were somewhat contracted and when alive would exceed their measurements.

Saxicava arctica were very numerous, the largest about $\frac{3}{4}$in long.

Anomia sp. quite abundant, about $^5/_8$in. across. Many of them covered with a small Balanus sp.

A. aculeata. None were noticed.

Small mytilus were abundant, up to $1^5/_8$inches long.

A species of Aeolis, not papilossa? grey in color, also eggs.

Small specimens of what seemed to be Dendronotus arborescens.

Small Acorn barnacles Balanus were plastered all over the inside of the "snoot".

A few Amphipods other than caprella were noticed and a few Isopods.

Caprella sp. 2 or 3 species? were swarming by thousands.

On only one other buoy had I seen as many.

2 asterias vulgaris small.

4 or more young Pecten magellanica (2 may be islandica, very small.

The Balanus were so crowded that they grew up instead of

June 25-1937 Great Round Shoal
continued

— broading, so that some looked like a dogs canine teeth and small ones at that. As they got up in the air above their fellows, they broadened out and smaller barnacles perched on their tops.

A few large Barnacles, another ~~specimen~~ species were here and there.

JUNE 28, 1937

A small can buoy brought in from off Cape Cod canal today had been pretty well cleaned before docking, but I gathered up what scrapings had been left on the deck. The usual *Tubularia crocea* was common, or plentiful. Lots of *Balanus sp.* probably *B. crenatus*, a quantity of *amphipods*, species to be determined later. Some are *Jassa marmorata* found the latter very plentiful.

Several species of *Amphipods*, *Unciola irrorata*, a few *Gammarus sp.*, a number of what seemed to be *Saxicava arctica*, some very small *Mytilus* a specimen of *Astyrus lunata*, perhaps several- *Lacuna vincta*, few , some very small *Pycnogonids*, possibly *Pallene* *sp.*, one *Asterias forbesii*. Undoubtedly a much greater variety would have been on the buoy but for the earlier scraping before brought to dock. A fragment of *Hydrid* which looked like *Campan. flexicosa*.

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BUOY FROM "HOLE" NEAR ENTRANCE TO BUZZARD'S BAY OFF PENZANCE HOLE

JUNE 29, 1937

The square sinker weighing several hundred pounds was almost covered with a shelly encrusting Bryozoa. Small Balanus, small bunches of Amaroucium constellatum, a small piece of sponge, species? Crissia eburnea, anachis avara, astyris lunata, Urosalpinx cinerea, Mytilus edulis, 2 specimens of Gouldia mactracea, a few specimens of Molgula sp., some Didimnum (Leptoclinum albidum). There was a quantity of Tubularia crocea, much of it in fruit, on the sinker and large chain. Some Hydroids Campanularia? sp.

Nereis pelagica
Lepidonotus squamata
Harmothoe sp.
Small nudibranchs (Montague sp.)
Hydroides among the Bryozoa
Pelia mutica
Small crab
Amphipod sp.
Caprella sp. small
Balanus crenatus?
Anomia simplex, few
Cynthia, a few
Largest Mytilus 3" long
Small Astrangia

Several kinds of sea weed

Algae

- Laminaria aghardhii
- Scytocyphon
- Ilea
- Polysiphonia
  - variegata
  - fibrolosa
  - violaceaa
- Ceramium rubrum
- Cystoclonium purpureum
- Ectocarpus confervoides
- Punctaria

JULY 1, 1937. BUOYS AND SINKER WAREHAM RIVER.

Quantities of shelly encrusting Bryozoa on the sinker.

Hydroides
Mytilus, very small.
Urosalpinx
Bugula flabellata.
Crissia eburnea?
Eudendrium. Fairly good condition, and fruiting. Well frazzled.
    Some was pretty.
Balanus sp.
Balanus eburneus.
Tubularia crocea.
Halichondria sp.
Panopeus sp.
Metridium? very small. Very few probably sagartia sp.
Asteria forbesii, a few 4 to 6in.
Schizotricha tenella scattering on the sinker.
Cynthia (styela) at base of Eudendrium.
Nereis pelagia, not large.
Polynoe squamata, small.
Amphipods, species not determined.
Sagartia sp?
Margelis? Carolinensis mostly stalks. Been out of water too long
    to survive.
Pycnogonid sp? (small spc) some bearing eggs.
Caprella sp. small.
Jassa marmorata, several noticed, probably many more.
Astyris lunata, few.
Parasabella.
Worms soft, long tentacles, a number.
Marphysa (species?)

Polysiphonia Varygata
Ectocarpus
Ulva.

Much material was at the base and holdfast of the Eudendrium.

Worms, small mytilus, and sagartia.
Other Hydroid species not identified.

QUICK'S HOLE 7/2/37

A cigar shaped can buoy (20 ft? long) been set a year; It was almost scraped clean when it was brought in. I got a little from it. The usual *Tubularia crocea,* small *Mytilus,* *Hydroides,* *Balanus,* *Bryozoa* (encrusting), *Crepidula forni.* , *one* *nudibranch,* *Montague,*

Amphipods, diff. species
Phyllodica, several
Polynoe squamata
Grantia, a few quite small
Jassa marmorata
Cynthia, a few
Parasabella a few
Bugula, very little
Crissia

BUOY FROM NEW BEDFORD (OFF THE HARBOR?)

(CAN BUOY) JULY 6, 1937

This Buoy was brought in about 10 a.m., but I did not get to it till morning, the next day. It was well scraped before I saw it. There was nothing large on it. Tubularia crocea was conspicuous and mostly in fruit. The larger bunches (not many) were more or less isolated. There were numerous young, small, short bunches scattered over the surface of the Buoy. The burrows of the very abundant Amphipods were also over the outside of the buoy. Species not determined at this writing. A number of Lacuna vincta, most of them below normal size. The usual common barnacle, B. crenatus?, scattered over the surface of the Buoy, sometimes in small patches clustered close together, Mytilus edulis were most abundant about the joints and in crevices, on the buoys as were also the amphipods. Largest Mytilus 3/4" long, only. Isopods were noted, some small encrusting bryozoa, saw one earwig, anisolabis maritima. The Jassa marmorata were among the larger amphipods. Idothea baltica were the isopods.

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JULY 7, 1937 BUOY NO.2. THREE MILES OFF NOMANS LAND

The Buoy had been set a year.

This was a large whistling light Buoy with about a 20ft. "Snoot" or cylinder. It was thoroughly lined with mytilus from tiny little fellows up to about 2in. in length. The lower end inside and out of Snoot had the largest and most numerous supply. Growing or becoming less and less as they approached the upper end. They were also numerous on the outside of the buoy, especially where nuts and rivets and joints provided a more secure foothold.

Grantia, many single clusters scattered over the inside of snoot, 15 or more feet up in the Snoot, beginning a few feet inside lower end.

Sponge sp. one specimen looking like Halichondria.

Tubularia couthouyi. I was rather surprised to find this hydroid. They were about 3in. long, I should judge as an average. Were immature. The heads came off very easily. They, like the Grantia were scattered here and there.

Bryozoa encrusting shelly variety.

Asterias forbesii, a few inside and out. All asterias from 1in. to 3 or 4in.
Asterias vulgaris, a few inside and out, **more numerous than A. forbesii.**

Nereis pelagica, quite plentiful all sizes.

Polynoe squamata, not many.

Harmathoe sp. plentiful, some very large for the species, red, black, grey, dorsally, some of them very beautiful. This region seems to produce larger ones than any other I have noticed. The hard coarse scaled typical P. squamata were scarce or lacking. Those found were thin and soft looking.

Flat worms under the matting formed by byssus of the mytilus were found fairly plentiful. A thin light colored wavey edged,

Planarian, I secured about 30 and was elated at the find as I had not taken any on the buoys previously. Unfortunately they went to pieces during the night, and I did not get them identified.

Pelas hillii. Two specimens were given me by Mr. Berg. He said they were the first he ever saw from Buoy off NoMans Land. They were large specimens.

Balanus sp. (B. crematus?) were as usual.

Amphipods, numerous, not identified at this writing.

Cancer borealis, several small specimens, seemed more or less fuzzy.

Page #2 on this Buoy.

JULY 7, 1937. BUOY #2 WHISTLING LIGHT

Off NoMans Land (3 miles)

Been set a year.

Phyllodice sp. several worked out from the mass of mussel byssus mat.

Anomia simplex, a few mostly small.

Anomia aculeata quite plentiful.

Saxicava arctica common but small.

Jassa marmorata, was one of the Amphipods.

Disstylis quadri, one specimen.

JULY 8, 1937. HALF MOON SHOAL BUOY No.1.

This is a little shorter buoy than the one from Nomans Land. While this was like the others, pretty well scraped, yet in the crevices and on the rivet heads and where chains are attached, on the outside and on the joints, also on the inside of *snoot*, *mytilus* had found lodgment and were thriving. The mytilus were smaller on the *inside* of the snoot also the barnacles (*Balanus*) were more plentiful, especially towards the upper end. Quantity of "*whiskers*", (*Tubularia crocea*) were, on both inside and outside. But more plentiful on the inside, and in greatest profusion at lower end. When I arrived, they were starting to unload the Buoy from the deck to the wharf. Looking at it, I noticed great patches of color in the outside of the drum or larger part of the buoy below the lantern; on close inspection, they proved to be beautiful patterns of shelly encrusting *Bryozoa*, while other buoys have had their growths of this toiler of the sea, yet this buoy was certainly the most covered of any I had ever seen. Patches of it were numerous on the outside. Some about 8in. across like some artificial device. Inside the snoot the Bryozoa encrusted nearly all the walls. The *Balanus* and *Tubularia* tried for their share of space and *Anomia glabra* tried "squatter sovereignty" but the *Bryozoa* moved on with the relentlessness of a glazier, not hesitating to cover the barnacles encrusting the *anomia* and even in some cases enveloping the stems of *tubularia*. I have seen the upper valve of *anomia* completely covered with *Balanus* and it seemed to me that *anomia* having such a load to raise when it opened its shell must have a hard time of it to get a living, and if the barnacles grew over the edges of *Anomia* , must in time prevent *anomia* from opening at all, consequently perishing from starvation, so when *Bryozoa*

July 8-1937 - Half Moon Shoal Buoy
continued

covered *Balanus* it seemed a just retribution, or case of bearing one anothers burdens. The whole combination of *Tubularia*, *Balanus* *Mytilus* and *Bryozoa* made a beautiful and attractive picture. Certainly Bryozoa greatly predominated, it also encrusted the tubes of *Hydroides*, but I guess this worm was too alert to allow *Bryozoa* to blockade his doorway.

Some of the Tubularia was in fruit, on the outside near the drum there was quite a growth of *Plumularia* (*Schizotrica*) *terrella*, also in fruit .

LIST OF SPECIES FOUND ON AND IN HALF MOON SHOAL BUOY

JULY 8, 1937

The predominating species as stated above were mainly four. It is hard to say which of these outdid the others, but I am listing them as they impressed me. Afterwards as I come to the different species without regard to classification.

Tubularia crocea.
Encrusting Bryozoa
Balanus sp. balanoides or crematus.
Mytilus edulis
Anomia glabra, different sizes and shapes, common up to 3/4ins broad.
Schizotrica tenella.
Bugula sp. (Turrita?) a number of small clusters.
Crepidula fornicata, some of these small, white and flat for the species.
Others of good size up to 1¼ins. long. Not nearly as many as of Anomia.
Alcyonidium sp? Some of these were up to 3inches long and slender, others mere knoblike productions, some resembled finger sponges,only they were as a rule solitary.
Many of the Anomia and some crepidula were covered.
Bryozoa soft, encrusting with a soft Bryozoa different from Alcyonidium.
Arca transversa, small about ½ inch long, some much smaller, probably there were more.
Hydroides (serpula) plentiful, many tubes covered with Bryozoa encrusting kind.
Saxicava arctica. Some up to ½inch long. Did not seem abundant.
Astyris lunata, several.
Lacuna vincta? one small without bands.
Jassa marmorata.

/arca pexata, 2 spec. first taken for A.transversa but probably A.pexata.

Caprella, several sizes 2 or 3 species?
Polynoe squamata.
Harmothoe.
Pycnogonide, white, very small.
Panopeus sp. small, several.
Balanus eburneus.
Phyllodice? one spc.
Metridium, a few.
Crissia eburnea, noticed a little.
Amaroucuum constellatum, one inch "lump"
Nereis pelagica, one medium, one small surprisingly scarce.

July 13, 1937 A NUN OR CAN BUOY #4

Probably from

Did not see it 'till morning of 14. Had Mytilus; Saxicava; Tubularia,crocea; Anomia aculeata; Balanus eburneus; Amphipods, species? Some algae; very small Pycnognids, some small anomia, some what the size of aculeata, but seemed to lack the rough aculeata characters, were more smooth, probably A. simplex.

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JULY 15, 1937. CAN OR NUN BUOY QUICK'S HOLE

Been set one year.

List of material.

Mytilus Edulis in profusion, covered the part under water.

Tubularia crocea, quantities. Small bunches lots of in front.

Crisia eburnea.

Obelia species (geniculata?)on *laminaria*.

Membranipora sp.

Amarosicuum constellatum small pieces scattered throughout.

Lacuna vincta few.

Astyris lunata, plentiful.

Amphipods sp. many.

Harmothoe, common.

Lepidonotus Squamata, common, some very small.

Nereis pelagica, plentiful, small, medium to large.

Pinnotheres, probably maculata, more were taken out of the mytilus.

Balanus sp. probably *B. balanoides*.

Doris sp. 1 small, similar to the 3 taken previously. New to me.

Eolis sp. 1 spec:

Montagua sp. nudibranch.

Idothea baltica, few.

Flat worms species? several.

Schizoporella sp?

Balanus eburneus.

Idothea phosphorea, one specimen.

Bugula sp. probably B. turrita.

Pycnogonids very small. Two seen undoubtedly were more of them.

Henricia sanguinolenta (one)

Asterias forbesii, one or two small perhaps.

[illegible] July 15-1937, Can or Nun Buoy
[illegible]
Been out one year

Asterias vulgaris one or two, small.

Jassa marmorata, saw several, evidently common.

Gammarus sp? one.

Serpula, common on sinker.

Some fine Thread worms, very small white. Many among the mytilus.

Phyllodice sp. one or more.

Small green worms, a few. Species? (Eulalia)

Caprella, saw one small one.

Shrimp, one (virbius?)

Panopaeus sp.

Earwig

Laminaria

Dulse

Ahnfeldtsia

Enteromorpha

Fucus platycarpus

Polysiphonia

JULY 19, 1937. FROM 4 CIGAR SHAPED CAN BUOYS.

Between Nomans and Gay Head, off West Tisbury.

(# 2-3,5, and?)

Barnacles with shelly base *B. crenatus*?

Tubularia crocea, much of it in fruit.

Mytilus edulis in super abundance, from very small up to $2\frac{3}{4}$ in. long.

Thread, round worms, small white among the *Mytilus*.

Anomia aculeata.

Nereis pelagica, large.

Crepidula forni. Small.

Balanus eburnes on mytilus.

Lepidonotus squamatus, small.

Obelia (*germmdata?*) on *laminaria*..

Jassa marmorata

Saxicava arctica.

Astyris lunata.

Idothea phosphoreas, small, 1.

Eulalia sp.?

Asterias vulgaris (one) 4in.

Caprella evidently not very numerous.

Mollusc eggs, small bunches, probably of *nudibranch*?

Pinnotheres maculata ♂♂ ♀s taken from *mytilus*.

Rock Eel, *Pholus gunnellus*, small, 2inches.

Panopaeus sp. 1

Phyllodice sp. 1 specimen.

Polysiphonia fibrilosa.
Cerarnium
Entomospha
Laminaria.

JULY 20, 1937

MUSKEGET CHANNEL BUOY

Mytilus edulis, small to abundant.

Tubularia crocea, abundant and in fruit.

Balanus crematus? abundant.

Balanus eburneus.

Jassa marmorata.

Amphipods besides *Jassa*.

Asterias forbesii, one spec. 6in.

Phyllodice, several (sp?)

Crissia eburnea.

Idothea baltica.

Idothea phosphorea several.

Caprella sp. different sizes 2 or 3 species.

Bugula very little.

Bryozoa on *Mytilus*.

Nereis pelagica, small.

Lepidonotus squamata, small.

Anomia, very small. Hard to tell species.

"CULTIVATOR" WHISTLING BUOY OFF "GEORGES"
July 22, 1937, had been set about 2 years

Well scraped before brought in, had a very small diameter "snoot" but very long.

Mytilus exceedingly numerous and mostly very large up to 3 7/8" long, almost filling the lower end of snoot up to 8 ft. or so, one measured about 3 5/8" .

Nereis pelagica, very many and large

Lepidonotus squamatus, common & large

Balanus sp. probably *B. crenatus*

Balanus bal.?

Balanus tintinabula? some nearly an inch and ½ base.

Saxicava arctica, some

Balanus eburneus, small

Tubularia crocea small bunches

Toad crab small specimens, several

Anomia, much rust colored

Lepas hillii one specimen on outside of buoy

Green sea urchins, small several up to 5/8" diameter

Metridium, a few very small

Crepidula fornicata on Mytilus

Pinotheres maculata 1 ♀

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JULY 22, 1937. BUOY FROM NEW BEDFORD HARBOR
Near Palmer's Island.

Bryozoa, Bugulus sp? in little round bunches 1[illegible] to 1[illegible] in. high about.
Bugula cucullifera.

Botryllus plenty.

Molgula man.

Small class (mya?) 1¼ in. long.

Bryozoa (shelly kind) on molgula, and Balanus.

Jassa marmorata.

Amphipods other than Jassa exceedingly numerous.

Balanus species crenatus or balanoides - any quantity.

Lepidonotus squasa, small.

Balanus eburneus, one probably more.

Mytilus ed. Very few. Very small ¼in. to 1in.

Bryozoa, a very curious form on Botryllus (memoranbora lacroixii)

Buoy pretty well scraped before I got it. Some material saved by men for me.

Summer School (Miss Mayo
2 classes visited X

JULY 26, 1937. HEN AND CHICKENS LIGHT BUOY, 17ft. SHOAL.

Been set a year.

This is one of those large "Snoot" buoys that one can go inside and work.

Covered inside and out with *mytilus edulis*, from very tiny up to a little over an inch in length. Mostly below that length.

Tubularia crocea very abundant and mostly in fruit.

Balanus sp. either crenatus or balanoides, very abundant.

Lepidonotus squamatus, abundant but small. Very few were of the heavy robust type.

Harmothoe imbricata? A number of them, but the worms had fared hard. Many had lost their scales.

Doris species, new to me, one spc. (Later found about a dozen).

Montagua sp. one spec.

Amphipods seen were very small. Have not identified them. Saw no *Caprella*.

Metridium, a few scattered about both in and on the outside. Small up to one inch across.

Many *balanus* on chain, and also very numerous inside the upper end of snoot, while *Mytilus* was more abundant on the lower end of snoot inside.

Did not notice any *Nereis pelagica*. If any they were quite small.

Phyllodice sp. Such as have been getting previously. Quite slender several.

Mytilus were in regular carpets. In places they were in double layers. *Balanus* seemed to have been smothered and killed, while others poked thru the carpet of byssus threads and obtained their living under *strained* conditions as it were.

Astyris lunata? 1.

L. Vincta? 1.

Hen and Chickens Light Buoy
17 ft. Shoal / July 25-1935
Been set a year

<u>Saxicava</u> arctica? 2 or 3 very small. These may prove to be <u>young mya</u>.

This is the buoy the Summer School visited. (Miss Mayo's two classes.)

JULY 28, 1937. MOSHER LEDGE GAS BUOY

About 3 Miles out of New Bedford

Mytilus edulis. In quantity, small and medium up to $2\frac{3}{4}$in. long.

Balanus species. B.crematus. B.balanoides? plentiful. Many dead.

Lepidonotus squamatus.

Amphipods, a number quite small to identify later.

Arca transversa, a number quite small 4mm. to 12mm.

Petricola pholadiformis, small 6mm. to 15mm.

Hydroids - Eudendrium sp. a small cluster.

Hydroids on mytilus.

Margelis? Polysiphonia.

Metridium, 1 small.

Harmothoe sp. several

Astyris lunata, a number.

Many of the mytilus covered with hydroid growths.

Bugula, a fragment.

Balanus eburneus on mytilus.

Bryozoa, shelly, scattered throughout small colonies.

Panopaeus texana 1.

Anomia aculeata 1.

Pinnotheres maculata, took 2 females out of the mytilus, a little Hydroid looking like campanalaria commissuralis. Sagartea one.
(the bushy kind)

July-29-1937

TRAFFIC GAS BUOY $6.SET ONE YEAR. "SHRUB".

Halfway between Penekese and Weepeckets in Bay.

Mytilus. Very many up to $2\frac{1}{4}$in.

Balanus. Very many Naucrates or Balanoides, or both.
Balanus eburneus, small on mytilus, fairly numerous.

Tubularia crocea, abundant and luxuriantly fruiting.

Nudibranchs,numerous in among Tubularia.

Idothea baltica, medium.

Metridium, several not large.

Nudibranchs, 2 or 3 species. Aeolis sp. probably,common. All thru' the tubularia, many clusters of eggs.

Pennaria tiarella, one large bunch.

Panopaeus texana, several, one with eggs.

Anachis avara on sinker.

Urosalpinx and eggs on the sinker.

Anomea aculeata? small, a few probably all young A.simplex.
Anomea simplex? Small. Several, largest 9mm. wide.

Caprella, few, small.

Doris sp. 2 small.

Astyris lunata, many very numerous.

Pinnotheres ♀ small, found more [illegible] later on.

Arca transversa, 1, very small.

Saxicava arctica, one or more spc. Very few, largest 12mm long.

Margelis carolinensus? a little, mostly discouraged looking.

Mytilus, many were covered with hydroid growths.

Polysiphonia elongata and some other algae.

Crepidula fornicata, a few very small.

Amphipods, many, small.

Jassa marmorata. Saw one [illegible] but undoubtedly were many more.

JULY 29, 1937. GAS BUOY. GREAT ROUND SHOAL.

Mytilus galore, small and large, up to 2¼ inches long.

Saxicava arctica, many small.

Amphipods, many small, Identify later.

Balanus eburneus on mytilus. Not large.

Tubularia crocea mostly short stems.

Bryozoa small patches on mytilus

Balanus crematus ? good size.

Metridium.

This buoy was almost completely scraped clean before being brought in, and what was left on dock was more or less mashed.

AUG.4, 1937. BUOY FROM OFF BLOCK ISLAND. (LIGHT BUOY) WITH LONG "SNOOT"

This buoy was hauled out on Aug.2. Landed in W.H. on Aug.4. and I did not get to it till early A.M. Aug.5. tho' the buoy was docked about noon Aug. 4. My lateness in getting at the buoy was a partial misunderstanding. There was little of life left.

Mytilus edulis was matted together outside and in the snoot, especially in the snoot. They could be scraped off in huge mats. All the mytilus being held together by their byssus very strongly. Many were very small.

Balanus sp. (crenatus?) numerous, thickest and most numerous in the upper end of snood.

Balanus eburnes? on mytilus.

Tubularia crocea, in bunches, very plentiful on the inside in fruit. While on the outside it was plentiful and more evenly spread. Scale worms I saw just alive which I think were Harmothoe.

Bryozoa sp. in patches mostly on the outside and quite numerous.

Jassa marmorata and other small Amphipods.

Small Laminaria grew scatteringly over the outside of the Buoy.

Cordaria? also.

There were two other species of Hydroids which I could not well make out, they had been so long dry, but one was evidently a

Campanularian, and the other resembled

Margelis, but was possibly another form.

Caprella sp. 1.

Nudibranch eggs on cluster.

Asterias forbesii, some very small $\frac{3}{4}$in? several

This Buoy is set in 150ft. of water. It is set the deepest of any Buoy in this district.

LIGHT BUOY FROM HANDKERCHIEF SHOAL

BROUGHT IN AUG. 25, 1937, HAD BEEN SET ONLY 5 or 6 WEEKS. WAS PUT OUT TO REPLACE LIGHT SHIP

There were large patches of *Hydroids* and small bunches of *Tubularia crocea*, and on the outside *Eudendrium sp.*

Some *Amphipods sp.*

Caprella sp. some with eggs

Nudibranchs plentiful, small and pinkish , up to 5/8 in. long,

Eolis sp.? also clusters of eggs.

Small *Anomia aculeata*

Crabs, young, *Pelia*, or *Toad crab*

Saxicava arctica one or more small

Hydroids were pretty well dried out several sp. perhaps

Campanularia, sp. or *Obelia*

Metridium, very small, one

Astyria lunata in abundance

Bryozoa?

Hydroids to be determined later

Barnacles noted-very young (one)

Crepidula fornicata, very young (one)

Asterias, about 1/8", one

Bugula turrita, very small bunches

* * *

BUOY FROM DUMPING GROUND BUZZ. BAY
CANAL DREDGING
Aug. 26, 1937, been set since Dec. 1936

Comparatively cleaned when brought in. Much *Tubularia crocea*, mostly without heads.

Barnacles, Balanus, sp. , plentiful

Mytilus edulis, from ¼" to about 2" long

Few small *L. squamatus*

Jassa marmorata and other small and young *Amphipods* in great abundance. Not a promising or satisfactory haul.

Polysiphonia variegata plenty.

Bugula, some

Did not expect this Buoy most of the material I had was saved in a quart bottle and put in their ice box over night, by one of the officers of the Arbutus. It was very kind and thoughtful of him. Also he phoned me when the buoy was brought in.

It was not a "snoot " buoy.

Astyris lunata, a number

Crepidula fornicata on *Mytilus*

* * *

16 SEPT. 1937. SQUASH MEADOW SPAR BUOY

Nantucket Sound
Been out about 14 months.

Contents on outside of Buoy about 30ft. of it in water. Badly eaten by *Teredo*, tho' saw no live ones, probably deeper in wood. Wood was so eaten that it could in places be easily split off with a putty knife, and in the old cavities and hollows left by the *Teredo*, numerous *Lepidonotus squamatus* and *Neopanope texana* found a refuge and hiding places. The crabs ran from very small to a fairly average size.

Bugula territa was in abundance nearly the whole length of the Spar. Numerous large patches (several inches across) of *A.Bryozoan.Schizoporella* sp? were on the Buoy, also large patches of *Styela* (*cynthis*) *partita* foundan abiding place. Mixed in with these were a few specimens of a hard textured Molgula sp.

Penaria tiarella was plentifully scattered over the surface and also *Plumularia terella* was quite abundant near middle of spar.

Perophora viridis was also growing on the wood as well as in some instances on the *styla*.

Some of the *Pennaria* was fruiting.

Caprella sp. was common of medium size. The color varied from horn to quite red, but was not sure the red was natural or due to other causes, tho' there is a pinkish red *caprella*.

Nereis pelagica were in evidence but not specially so, varied in size from quite small up to 3 or more inches.

Didemnum albida in small and isolated patches, and *Amaroucium constellatum*, was also found but no greatamount. A small worm looking like young amphitrite was found in the interstices of *styela*.

Some *crissia eburnea*, *anomia simplex*, *crepidula fornicata*, common small to very good size. Several specimens white, and except for the rounded and domelike top could easily pass for *C.plana*.

Inumerable small *amphipods*probably several species.

Numbers of *Astyris lunata.*

Saxicava arctica, one

Some *Balanus eburneus*, fair size.

SEPTEMBER 15, 1937. SQUASH MEADOW SPAR BUOY (No. 2)

Pinnotheres sp. 1.

Mytilus edulis, small to medium, not abundant.

One *Sagartia*, species undetermined, found in a *Teredo* burrow.

Some very small *Pycnogoreids* were found among the *Ascidians*.

POLLOCK RIP CHANNEL TUBE BUOY (Small Diam.)

Asterias vulgaris many of 4-6" diameter.

Mytilus; very many outside and especially on chain, diff. sizes up to more than 2".

Nereis pelagica, a number good size.

Nudibranch eggs probably of *Dendronotus*

Caprella, numberous

Tubularia crocea, lots

Polynoe squamata, many

Balanus sp.

Saxicava arctica, small

Dendronotus, mostly small

Ciona? small, and *Molgula?*

1 Nereis sp. , 2 or more, not determined

Anomia simplex, young

Green urchins, (Strongy.) numbers, from ½" up to 3/4" diam.

Amphipods, plenty

Harmathoe imbricata? probably as these had most all scales off, when examining later was not absolutely sure, but it is safe to list them.

Jassa marmorata, some.

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BELL BUOY STAGE HARBOR OFF YARMOUTH PORT 9/24/1937

The men said it had been set about 8 months.

It was pretty clean, though *B. eburneus* was noted and of good size. *Bryozoa*, *Schizoporella sp.*? probably, *Hydroides* small, and some *hydroids* of a coarse heavy, branching kind looking like *Margelia carolinensis*, but had been out in the sun several hours, so that it was dry and fairly stiff. Another smaller and finer Hydroid resembling *Clytia* somewhat also was prevalent, also dry and discouraged looking. The coarse Hydroid was quite abundant. There were several species of *algae*. In amongst this and in the roots or *Hydrorhiza* of the hydroids as well as in the burrows which they themselves had made, lived innumerable *amphipods*; conspicuous among them was *Jassa marmorata*, but many small ones probably many of them young-as well as other species-not identified at this time. *Crepidula fornicata*, one with eggs, was now and then to be seen, up to 1½ inches long. Even the chain was covered with sea growths, Hydroids, etc. A very few *Mytilus edulis* (5/8" to about 7/8" long) were in the joints and in crevices. I doubt if I saw a dozen all told. The fewest I had seen in any buoy, As the men said "clean buoy", being just a Bell Buoy it had no so called "snoot", other wise a different story of specimens collected might have resulted. This is different from some of the Bell Boys in hotels as they may get or become "snooty". A short, rather coarse red alga was abundant and was a great help to the Amphipods in building their homes. The buoy was carpeted with them. Among the other Amphipods, *Caprella sp.* were found but seemingly not abundant. Some of the Hydroids were in fruit.

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Dec. 18

not a buoy, Just a little shore Fog signal

DECEMBER 2, 1937.

Raw and cold wind from North to N.E., cloudy and dull day. Tried collecting at Penzance Point on the *Chondrus* growing at the base of some of the large rocks was a fine little hydroid, one *cerithiopsis terebralis*, and one *Oclostomia bisuturalis* was taken. *Sagartia sp.* and a few *Bittium sp.* Took several *Thais lapillus*. These were way down partially buried in sand and stones usually at the base of a bare rock. Some *urosalpinx* eggs with the young in them, others empty. A number of very small *urosalpinx* on the under side of stones. *L. littorea* abundant, *astyris* and *lacuna* common as also small *amphipods*, but then they are everywhere. At some time in the past, there must have been a marsh along part of the beach. There are some patches of old peat beds in places and in one place on the Bay side, I dug *Petricola* several days ago.

Where I was today, I think *petricola* & *Barnea* will be found if one has the proper tool for digging. A spade is good. *Mya* is here and probably *Venus*, also *Anomia simplex*. Small *Caprella* were numerous in among the *Chondrus*, *Cynthia (Styela)* small was found in small numbers on *chondrus* and some rocks.

DECEMBER 18, 1937.

Was told this A.M. that a buoy (Bell Buoy all I found) from Pollock Rip was brought in yesterday. I looked it over but it was raining hard and things were soaked. *Scale worms* some. *Nereis pelagica* abundant. *Mytilus* small to medium. *Balanus* few. A few A. vulgaris small. *Saxicava arctica*. Some up to ¾ inch long. A few *Tubularia crocea*. The item that impressed me most was the number and size of *Anomia aculeata*, they were from 1½mm. up to 2 or 3mm. scattered around on the buoy and on the chain. The buoy

Continuation of Dec. 18-1931
Bell Buoy, Pollock Rip

had been so drenched by the rain, and it was raining so hard that it was discouraging to try longer. The buoy had been fairly cleaned previously to my advent, but not thoroughly. No doubt there were <u>Amphipods</u> and other forms. (but enough said)

CYLINDER BUOY FROM CROSS RIP (No. 1)

(Been set 1 year) Brought in March 24, 1938 (about noon)

While this buoy was brought in to the Buoy Yard dock March 24, I did not get word of it 'till after 8 o'clock the next morning. I went down to look it over, but too late to get the full data regarding its fauna. It had been well cleaned except in the "Snoot". This was lined with Mytilus edulis, largest 2 3/8 in. long.
Encrusting Bryozoa were in patches.
Tubularia crocea was abundant, most of it fairly short stalks, but forming a regular mat in, on, and among the stalks were quantities of amphipods, mostly Jassa marmorata. There were undoubtedly Nudibranchs in the hydroid, but they must have been washed away in the cleaning. I thought I saw one with no gills.
Balanus eburneus were scattered through the cylinder and some Balanus were very small as the though they were only this spring's product.
Crepidula fornicata were plentiful and quite flat and broad, some single. Where there were more than one in a pile the under one was much broader and flatter than the upper ones, mostly large specimens were common throughout the Snoot. Largest were about 43mm L x 33 mm W.;
44 mm L x 35mm W; 44 mm L. x 34mm W; 44mm L x 33mm W 46mm long.
Anomia simplex, large specimens mostly, were common throughout the inside the snoot measuring 37mm L x 42mm broad; 35mm L x 40mm B.;
47mm L x 37mm B.
Hydroides, also common
Caprella sp. noticed a number less than a dozen, but without doubt there were many more.
Metridium " "
Panopeus sp., mostly small, quite so

In regard to the Mytilus edulis on or in this Cross Rip Buoy I might say a word in regard to the color. Many of these were almost black, others were buff, or yellowish, some were beautifully marked with radiating lines. Held against the light some showed many lines of an almost indigo blue on a buff-yellow or brown gound color. Some were like the deep blue black of a thunder cloud, lighter toward the broader or siphonal end. All these colored shells appeared much thinner than the beach Mytilus. Some had more dark lines than others. There was a great variation in the pattern of radiation lines. It seemed to me that those in the "Snoot" were in general more given to lighter color and had more radiating lines, or more given to radiating lines than those on the outside of the Snoot, those on the outside conforming more closely to typical Mytilus edulis, running more to a plain dark color than those on the inside.

I decided that the ones with light ground color and radiating lines were Mytilus pellucidum . I do not recall that I have seen these light colored ones and with radiating lines on the regular mussel beds on the beaches or flats.

* * *

TUBULAR LIGHT BUOY V.S. OFF NAUSHON May 14, 1938

Richly and profusely covered inside and out with full fruiting *Tubularia crocea*, mixed in among this mostly on the inside were large patches of sponge--*Leucosolenia sp.* some of these clusters 4", perhaps more, across.

Caprella seemed to be mostly C. geometrica, very plentiful

Nudibranchs and eggs

Finger sponge, *Chalina sp.* from very short to 4" tall or more

Amphipods, abundants

Jassa marmorata, abundant

Grantia, small, in patches, ¼ to ½" tall, some a little larger

Anomia, small, a. simplex and aculeata. One small Mytilus had both species on it.

Nereis pelagica, plentiful, mostly of good size.

Toad crab, 1 small young

Cynthia partita, small specimens, scattered about

Ciona tenella, one large specimen.

Mytilus, not many, small to 1½"

Harmothoe imbricata, some fine large specimens

Polynoe squamata, were not noted, but might have been a few

Astryis lunata

Balanus eburneus?

Balanus crenatus?

Dendronotus sp. a few some of good size

Crepidula fornicata, a few small

Panopeus sp. small a number

* * *

Idotea phosphorea
on Naushon buoy

NASHUEWENA TUBE BUOY

May 20, 1938

Cirolana sp. a few

Tubularia crocea, very much and in fruit

Nereis pelagica, a number of good size

Chalina sp. size of lead pencil singly and in clusters, not so many as on Naushon Buoy, but same kind

Metridium small, a few, up to 1" diameter.

Balanus eburneus many

Balanus sp. crenatus? a number

Anomia aculeata, many

Amphipods, very abundant

Jassa marmorata, many

Nudibranchs, at least 2 species, one species with very red gills, one gray (Eolis sp?)

Anomia simplex, young small

Panopoeus sp. several

Asterias vulgaris, very small, 1 inch

Panopeus with small 3 Anomia simplex on carapax

Leucosolenia clusters, but much less than Naushon buoy

Molgula a few

Nudibranch eggs

Mytilus edulis 3/16 in. small ½ in. to 1 ½ and 2 inches, many of the smaller ones, but large ones not numerous.

Laminaria young

Phyllodoce like worm same as on many other buoys, one found but probably many more were there.

Saxicava arctica few very small

Astyris lunata many

Caprella sp. one?

Idotea phosphorea one or more. Algae to be determined later, several.

SMALL BUOY (#2) FISHER'S GROUND, OFF NANTUCKE

May 25, 1938

Mytilus edulis from $\frac{1}{2}$ inch up to 1 3/4 inch long fairly plentiful

Balanus (crenatus?) scattered

Amphipods in enormous numbers

" *Jassa marmorata* very common

Algae 2 or 3 species, towards the upper part of buoy

Near the top on the broad surface were great areas of the homes or burrows of *Amphipods*:

This buoy and $\frac{1}{RG}$ had the lower end fairly well scraped by the crew of the Anemone before landing,

Caprella While none were noted they may have been there, if so, they were not abundant, or would have been seen.

**** ****************

25, MAY, 1938

ROSEN GROUND BUOY OFF NANTUCKET MARKED R.G.

This was not a tube buoy, all material was on the outside. The first striking object on the top of the buoy, mostly upper side and top, was the great number of Caprella sp. which had crawled to the surface from their hiding places as the buoy began to dry. Thousands of them, small to large, two mor more species. There was a growth of short stemmed Tubularia crocea, and on top of this were the caprella, also numerous Amphipods.

Jassa marmorata being quite conspicuous. In among the Tubularia were numerous whitish grey tubes which I, at first, thought were,

Grantia but decided they were homes of Amphipods.

Balanus species were scattered about over the buoy, eburneus or crenatus or -

Mytilus edulis were more or less plentiful, more or less in clusters. Largest single mytilus about 2in. long.

Dedronotus sp. were quite plentiful, mostly small ½in. to over 1in. in length, clusters or patches of eggs were common. I presumed these must Dendronotus eggs, though they resembled Eolis papillosa eggs.

Idotea phosphorea at least one, undoubtedly there were more.

Nereis pelagica. Saw very few.

Scale worms did not notice.

Bryozoa, small patches on mytilus, species not determined at the time.
Amphipod homes were numerous in patches on the buoy.

Aeolis with red gills were quite plentiful, about ½in long. These were too small to have laid the eggs mentioned above. A few algae were found (ulva)? and a Limunaria? small and a red brown branching form.

Phillodoce sp? Some long slender worms in the interstices of Tubularia which I have hesitatingly referred to this genus. They were very glutinous. They emerged from their hiding places as the water became stale, crawling to the sides of the dish to the water line.

MAY 25, 1938

Three buoys this morning from off Nantucket, none of them were cylinder or tube buoys (snoots) . Two were shaped 

First: Buoy larger than others much same shape from Sankety Pond and marked #2.

Some large *Balanus* with shelly base were scattered over this buoy. Some of the smaller ones had pinkish tops; the largest ones measured 1¼ in. to more than 1½ inches across the base.

Tubularia crocea, short stems, small heads, was quite abundant.

Dendronotus sp. were found on the outside of the hydroids, most of them had evidently dropped off when the buoy was taken from the water. Those found were nearly or quite dead hanging at the tops of the *tubularia*.

There were,however, large and numerous clusters or patches of nudibranch eggs. These eggs looked like those of *Aeolis papillosa* but none of these latter were found, so presumed the eggs belonged to *Dendronotus*.

Amphipods were very abundant, but did not observe *caprella*.

Jassa marmorata predominant.

Mytilus edulis, up to 2inches long and many smaller ones, while plentiful did not seem so numerous as on some buoys.

Phyllodoce sp? 2 or 3 noticed but probably many were there not seen.

Nudibranch with red gills, one was seen.

Nudibranch Aeolis sp. One nearly 1 inch long, not *papillosa*.

Some *Algae*, brown and looking something like *Laminaria* but was evidently not. Clusters or branches with slender fronds.

Saxicava arctica. One attached to mytilus.

JUNE 15, 1938. TWO SMALL BUOYS OFF NOBSKA.

One was a bell buoy, the other a smaller one.

Been set about a year.

Tubularia crocea in profusion, in good condition, short stemmed.

Mytilus abundant, largest 2¾in.long. Smallest 5mm. long. Varying in size between these mesurements, mostly medium size. In greatest abundance on the anchoring chain.

Amphipods by the thousands. Some very small and young. Not all identified at this time.

Jassa marmorata was found, undoubtedly common.

Modiola Modiolus. One specimen about 9mm. long. Possibly there may have been more.

Molgula sp. One or more.

Ammoroecium con. Very small growths.

Mya arenaria. One 5mm. long.

Nudibranch. One small, about 5mm. there must have been more, but not observed. It is the right seson and conditions for them.

Astyris lunata. Plentiful,

Nereis pelagica. Plentiful.

Scale worms were not observed. A few small short round worms, species not identified.

Grantia. Clusters scattered over the buoy, but not plentiful.

Balanus eburneus also scattered over the buoy but not especially numerous.

Bryozoa not observed.

Algae. Several species. Ulva. Ectocarpus, Scypho siphon? Desmorestia? and others. Reserved for identification later.

Pinnotheres ostreum? one specimen found.

Pycnogonids. Some very small ones, probably, Pallene sp.

JUNE 17, 1938. "SNOOT"LIGHT BUOY POLLOCK RIP.

The outside of this buoy had been well scraped off before docking, so that nearly all material obtained was from inside of "Snoot". Been set one year.

Mytilus edulis in great abundance outside and inside.

Different sizes up to from 3mm. 2½ in. or over 60mm. Those on the lower edge of buoy were blunted on the siphonal end or distal end, quite noticeably different from the sharp cutting knife like edges of those further in or on outside of buoy. These blunted ones were also smaller than the average lot of the others.

Saxicava arctica was abundant mostly between and under the mussels, about 17mm. length of largest.

Anomia simplex,small and plentiful mostly under the other material.

Caprella sp. plentiful but not nearly so many as on some other buoys.

Doto coronata, two specimens were found, undoubtedly there were others.

Nereis pelagica, common.

Balanus species mostly B.eburneus.

Tubularia crocea common.

One large bunch Eudendrium sp?

Amphipods numerous, species not all identified at time, but

Jassa Marmorata was one species and conspicuous.

Lepidonotus squamatus one notice probably more.

A sponge like formation, hollow, covered with a bryozoa? and an amphipod living in the tube-like hollow was foound near the top of the float part of the buoy, unidentified at time.

Metridium were scattered inside , but more on the outside of the buoy. Some of fair size 1½ in. or more in diameter.

BUOY # 4 FROM OFF NO MAN'S LAND 6/20/38

Much laminaria in slender long graceful streamers

Some Dulse, small

Ectocarpus sp. profuse on the top of the Buoy

Algae of several species scattered over the buoy

Balanus species common

Mytilus edulis mostly small but abundant up to 33mm long

Tubularia crocea short stemmed

Amphipods extremely abundant

Jassa marmorata especially

Phyllodice as in other buoys

Grantia a few

Anomia aculeata, common

" simplex, small, young, common

Balanus sp. quite small, probably B. eburneus
Lepidonotus squamata, a few small

Caprella, not observed

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21 JUNE, 1938. SHORT TUBE LIGHT BUOY OFF GAY HEAD SQUIBNOCKET.

#A.1

Mytilus in abundance from very tiny up to $2\frac{3}{4}$in. and perhaps some larger.

Balanus eburneus, small, were numerous on some of the mytilus, especially on the inside and near the lower end, but scattered over the buoy inside and out.

Tubularia crocea, in little clusters and short stalks abundant, particularly on the underside of the bulging part of the buoy.

Nereis pelagica, abundant and of moderate size too.

Saxicava arctica, scattering amongst and under mytilus, small size.

Lepidonotus squamata, small, saw only a few but no very large ones.

Amphipods, in great numbers.

Caprella, did not observe, why they were absent was a question.

Jassa marmorata was abundant and had numerous holes or burrows in a sponge like structure which in turn was covered with a network of a beautiful bryozoa. This was in patches and quite numerous on certain parts of the buoy and evidently spread on to the buoy from these clusters or vice versa.

Grantia was found, but not plentiful.

Asterias vulgaris, small specimens (3 or 4in.) were noticed not abundant.

Pycnogonid small. Probably *Pallene sp.* common.

Anomia simplex small and young not much larger or about same size, as *Anomda aculeata* which was abundant and mostly attached to the buoy itself, also attached to the *byssus* of mytilus mixed in with numerous small mytilus.

Chalina species, small, mostly solitary, here and there on the buoy, not plentiful.

Leucosolenia, mostly on out side of buoy and in scattered bunches not particularly common, but good sized clusters.

Crissia eburnea, in about same proportion as *Leucosolenia*.

Metridium dianthus, a number of specimens.

Cancer inoratus, one small specimen $1\frac{1}{4}$in. wide.

Panopeus sp. 1 very small.

One large *mytilus* had on it some small *Balanus eburneus,* some young.

Anomia simplex and partly covering one *A.simplex* was fine specimen *anomia aculeata*, strongly marked and a little smaller than the *A.simplex* which it was overlapping.

Asterias forbesii (one or more small) 2 or 3in.

Phyllodice? sp. small, living in the crevices and under *mytilus*.

Nudibranch, one small one $\frac{1}{2}$in. probably *aeolis sp.*

Harmothoe were possibly among the *mytilus*.

Astyris lunata, saw one, undoubtedly were others.

Bryozoa, coarse, shelly encrusting. (schizoporella?)

Botanical - Algae.
- *Ectocarpus* (or *claladophora*)
- *Dulse young*.
- *Laminaria* "
- And some other forms not determined.

Later.

One Flat worm (turbellarian)
one specimen of what looks like a very small Sea Hare about $\frac{1}{2}$in. long, found among the mytilus and other stuff.

NAUSETT LIGHT BUOY. A LARGE "SNOOT" BUOY.

Nausett

Brought in June 25, 1938 A.1.

Did not see this until a while after it had been unloaded and much of the material had been cleaned off.

Mytilus edulis, small up to 2¾in. long were in abundance mostly on outside of the buoy.
Parypha- tubularis crocea small short stalked bunches, not so numerous as on some other buoys. More than a hundred possibly 200.
Metridium dianthus. Plentiful from quite small, less than ¼in. up to 2½in or 3in diameter of base. Some smaller?
Asterias vulgaris Scattered about mostly small 2½in or so, some larger.
Saxicava arctica, plentiful under and among the mytilus, small up to about 18mm or 20mm.
Aeolis sp. resembling A.palilossa (2species) about 20mm. to 35mm long; common.
Doris sp. Light yellow, 8mm. to 17mm. long.
Doris sp. white or very nearly so, about same sizes as yellow sp.
Anomia simplex, young. quite plentiful from 11mm to 20mm. broad.
Anomia aculeata, not so abundant as A.simplex, 6mm. to 11mm. and seemingly higher.
Pecten magellanicus, young, from 6mm. wide to about 20mm. wide, mostly between these sizes. They were attached to other objects by a small byssus.
Nereis pelagica, different sizes were quite common.
Pelidonotus squamatus scattering. Probably abundant when buoy was first taken.
Balanus, two species (on the upper end, inside the buoy forming a ring, was a band or zone of small Balanus eburneus? 3mm. to 12mm. or more in height. This band or zone was quite conspicuous and was possibly a foot or more in width completely encircling the inside near the top.
Aeolis or Doris eggs were met with now and then.
Mollusc eggs in small bunches were on some hydroids.
Bryozoa species. A irregular thick, more or less massive gelatinous form was found on the buoy, mostly inside, not plentiful.
Bryozoa. In regular Mats, almost lined the inside of the buoy and running over the burrows of the Amphipods, this Bryozoa gave a grayish look to the inside sides of the buoy.

JUNE 25, 1938. ~~NANSETT~~ Nausett LIGHT BUOY

A2 - continued.

Amphipods,very plentiful reserved for identification.

Jassa marmorata, was conspicuous among them.

Gastropods on and in in the crevices of the gelatinous bryozoa.

A number of small shells which roughly resembled -

Margarita, these to be identified later.

Bryozoa was found on Mytilus, another species.

Hyppolyte (spirontocaris) pusiola? A beautiful specimen of shrimp, which I roughly assigned to this species till it could be examined mOre closely was found. A second was thought to be there but did not turn up again.

Dendronotus sp. 2 small specimens so badly messed as to be doubtful. Were very probably of this genus.

Doto coronata, one specimen, probably there were more.

Planarians, small, up to 5mm. after preserving. Took several but must have been many more.

Nudibranchs, 4, small with clusters of eggs numerous on hydroids. There were undoubtedly many more. 4mm. to 5mm.

Algae. Several species to be determined later.

Phyllodice sp? one or two specimens, the same kind as have been taken on other buoys.

30 JUNE, 1938. 2 SMALL BUOYS OFF THE CANAL.

B.B.

Mytilus in quantity 6mm. to $1^{5}/_{8}$ & $1^{7}/_{8}$inches, mostly smaller than the higher measure.

Mytilus radiata, a few scattered throughout.

Saxicava arctica, a number interspersed, small to 20mm.

Anomia simplex, common mostly young. 1 large adult.

Anomia aculeata, common.

Crepidula fornicata, a few very young spec.3-4mm.

Pecten irradians, one spec.

Arca pexata, five small specimens, 7-12mm. wide.

Metridium dianthus, a number scattered over the buoy, but not numerous, quite small to $1\frac{1}{2}$ in. or larger.

Tubularia crocea, small bunches did not seem to be in good condition, many only stalks.

Grantia,medium to large size not plentiful.

Botryllis, a few small pieces.

Styela (*cynthia*) in small clusters

Molgula sp. Probably *m.manhattensis*, a few interspersed among *mytilus*. Not large $\frac{1}{2}$in. or so high.

Amaroecium constellatum, one very small piece.

Balanus eburneus, common.

Balanus sp? common.

Hydroides (*serpula*) sparingly.

Lepidonotus squamata, small to more than $1\frac{1}{2}$inches, probably numerous, when buoy was first taken out.

Harmothoe imbricata, noticed a few medium size. Not so many as L.squam:

Amphipods, very numerous, but did not ascertain all the different species, at this time, but -

Jassa marmorata was conspicuous and abundant.

Caprella sp. if here were not observed. Their absence was surprising.

Amphitrite ornata? or similar worm were among the mytilus, from 1in. to 2in. long.

Worms, long, slender, green in color, perhaps 2in. long, reminding me of *Phyllodice*.

Worms, long, slender yellowish olive in color were common about the size of the green ones.

Tetrastemma sp? a few.

Astyris lunata,noticed some.

Bugula sp. *turrita*, evidently.

Bryozoa shelly, schioporella?

Parasabella micropthalmia of large size and also small and medium, common.

Panoepeus texana, several spc.

POLLOCK RIP STRIPED BUOY #2A July 8, 1938

Things fairly dry before got at it.

Many Mytilus, from quite small up to 2½", some may have been larger

Tubularia crocea, very small bunches and short stalks , scattered about among the Mytilus, not abundant

Bryozoa, species not identified at this time. Many patches of the species noticed, mostly on the buoy, but some times on the Mytilus.

Amphipods by the thousands, many burrows did not identify all.

Jassa marmorata, abundant as usual

Caprella sp., common, probably several species.

Balanus eburneus plentiful diff. sizes

Balanus sp. unidentified at time

Anomia simplex small young, abundant under the Mytilus and among their byssus 3mm. to 6mm and 12mm

Anomia aculeata, mixed in with simplex did not appear as numerous as A. simplex, about same size.

Saxicava arctica, abundant and associated generally with anomia in same conditions (16mm and larger 22mm)

Nereis pelagica common

Gastropod small

* * *

JULY 27, 1938. CHATHAM "SNOOT " BUOY. SHEET #1.

Somehow in the rush of other work, the taking of notes on this buoy was neglected until this day Oct. 21, 1938. Samples of the material were taken at the time the buoy was brought in, so the variety of specimens is fairly accurate, but the abundance of each kind is uncertain but in the main reliable.

Tubularia crocea probably but "heads" very large. Some specimens with fairly short stems; this hydroid is usually abundant.

Mytilus edulis. Probably abundant, in size from 18mm. to 60mm.

Metridium dianthus, a number, one inch or more diameter.

Nereia pelagica, common of good size, up to 100 or more mm. long.

Asterias vulgaris, some, 3 to 4in. across.

Balanus species. Some about 30mm. across base, to be determined later.
Bryozoa species, a shelly kind on mytilus.
Bryozoa species. Gelatinous. Quite numerous and in irregular masses, to an inch or more in height, short hydroids were growing on some pieces, besides tubularia.

Bryozoa species. Forming a network over many sessile forms, and under this Bryozoa and in amongst it amphipods had their homes or burrows.

Amphipod burrows were plentiful.

Mollusc eggs, small capsules looking like little bubbles were plentiful in places.

Asterias species (undetermined yet) 1 5/8in. across.

Saxicava arctica What appears to be the very young of this species, 1½mm. and up were found in amongst the bases of the byssus of mytilus, and roots of hydroids, one 16mm.

Anomia simplex.

Jassa marmorata and other,
Amphipods.

Modiola modilus, what appeared to be a young specimen about 4mm. long with epidermis.

Gastropode, very minute and seemingly attached to end of tubularia stalks, which in turn were covered with a network of reticulate Bryozoa, these gastropods were very fragile, fairly common.

27 JULY, 1938. CHATHAM "SNOOT" BUOY. SHEET #2.

Skenia planorbis, mixed in with the other minute gastropode.

Diatome or *globigerina*, a number mixed in the Bryozoa

Cancer borealis, young 1mm. broad.

Pecten magellanica, young, 13mm. and 18mm. long.

Balanus species, smaller than the first mentioned. A number.

Mytilus edulis pellucidum, a few.

Lepidonotus squamatus, some.

Anomia aculeata, 12mm. long, few.

Balanus eburneus, on *mytilus*.

Doris species, number? 15mm. long.

More to add.

NASHUWENA BUOY V.S. 7/28/38

This buoy was put on its station in May, but was run into (undoubtedly in the fog) necessitating changing. There was little of special interest except that on it were some living Anomia simplex, ranging from 7mm up to 40mm in length. To me it was astonishing to learn that these could grow so much in 3 months, for these buoys are set in a perfectly clean condition; the greater number were between these sizes.

Things noted on this buoy:

Anomia simplex, a number

Mytilus edulis, a fair number from 6mm up to 40mm long

Saxicava arctica, one noted were probably more

Crepidula plana, one " " " "

Balanus eburneus, some

Balanus crenatus "

Tubularia crocea, plenty

Eupanopeus texana

Cancer irrorata or borealis

Amphipods

Jassa marmorata

Bryozoa-the larger anomia simplex were encrusted on the greater part of the dorsal valve with alcyonidium polyorum

* * *

GREAT ROUND SHOALS BUOY Aug. 2, 1938

Mytilus in abundance, various sizes up to 3".

Tubularia crocea, plenty

Tubularia sp. "

Nereis pelagica from small to large, very numbers

Lepidonotus squamatus abundant

Amphitrite? or similar worm in tubes

Saxicava artica abundant, small 3 mm to 23mm
Anomia aculeata, few

Bryozoa sp. shelly, on Mytilus

Amphipods numerous especially on the outside where they made many burrows.

Dendronotus sp. found a few

Several small brittle stars, probably young O. aculeata

Strongypcentrotus drobachensis, very small, common

Asterias vulgaris, many from a few inches to 8 in.? Some (one) with ripe eggs.

Caprella sp. a few

Crab one small P. maculata? or P. ostreum

Metridium dianthus many inside and out ½" to 2 or more ins.

Anomia simplex a few young

Balanus sp. crenatus? eburneus? hameri?

* * *

BUOY OFF NO MAN'S LAND BEEN SET ONE YEAR Aug. 12, 1938 (Snoot)

Mytilus edulis, covered, very tiny to 1½" perhaps 2"

Tubullaria crocea, some, but not profuse

Amphipods, many especially

Jassa marmorata

Metridium, some

Bryozoa some

Nereis pelagica, a number, but not so abundant as on some buoys.

Nereids, some small slender ones crawled out from among the Mytilus.

Harmothoe, more or less common, but not large.

Lepidonotus " " " " " " "

Saxicava arctica, a number but quite small

Anomia aculeata, numerous, many dead shells

Worms, abundance of very small white ones (species?)

Asterias forbesii, scattered about 5-6" size

Mytilus edulis pellucidum, a few medium and small which could be so called.

Bugula turrita, not abundant mostly on the "sinker".

Dulse

Noticed no barnacles

" " Caprella

Some small buoys between Gay Head & No Man's Land were festooned with an abundance of Laminaria agardhii and animal life seemed to be much the same as the large buoy at No Man's.

* * *

#1

"SNOOT" BUOY**SOUTH SHOAL--Off Nantucket Aug.15, 1938

Lepas hillii, large, some nearly 2" length of shell about a pail full were the most important things on this buoy, all growing on the outside, I am told by the men that they are not found on the inside. Attached to some of the Lepas was a beautiful hydroid, and also the alga Punctaria was a frequent interloper on this Lepas, principally on the "neck".

Balanus, 2 species, B. Hammeri, B. crenatus (B. eburneus?)

Tubularia crocea, was common but not especially abundant. Some small, some in large heavy fruit

Amphipods, very abundant,

Jassa marmorata, was prominent

Mytilus edulis was very abundant from tiny 5mm or perhaps less in length up to the large attractive black ones. These large Mytilus which grow on the buoys are about the largest and blackest and beautiful of this species, many were 2 3/4 in. in length and I have no doubt that some might reach a length of 3 or more inches.

Anomia aculeata was abundant, some were probably just dead shells

Anomia simplex. There were a number of anomia about the size of A. aculeata but more or less smooth, lacking the typical markings of A. aculeata. These might have been rubbed specimens of A. aculeata or immature A. simplex,found no large A. simplex

Saxicava arctica was more or less in evidence, but mostly small specimens.

Pecten magellanicus very small ones were found attached by their byssus, common but not abundant.

Nereis pelagica very abundant and running to fairly large size.

Lepidonotus squamata common to plentiful

Harmothoe imbricata "

Asterias vulgaris, small or medium were there but not abundant.

Bryozoa species on mytilus and on buoy(shelly) much the same as on other buoys.

Did not observe Caprella nor nudibranchs

Modiolus modiolus, noted one specimen 10mm in length, may have been others.

* * *

LARGE LIGHT "SHOOT" BUOY FROM GREAT ROUND SHOAL

Brought in Aug. 20, 1938

Practically everything was very dead, and much of the material, starfish, Metridium Mytilus, etc. was decomposed and with a very offensive smell, so much so that it was not easy to tell the different species of starfish, but to the best of determination there were 3 species subject to later correction.

Asterias vulgaris
" forbesii
" littoralis?

There were a great many starfish from about 2" up to 6" or more.

Brittle stars, found several, but hard to determine species, probably O. aculeata

Hyas coarctatus must be quite common to the region as several were found in the snoot of small to medium size; two were carrying a peculiar Bryozoan membranipora lineata, on carapace.

1 Hyas small bearing red eggs, 2 Hyas small, not bearing eggs

Cancer borealis, small 2 or 3 noted

Caprella sp. very abundant

Amphipods extremely abundant, among them, also abundant, was

Jassa marmorata

Mytilus edulis, up to 2½" in length, abundant inside and outside of buoy many of them covered with, or partly covered more or less with a shelly bryozoa

Bryozoa, on Mytilus, and in patches on buoy

Nereis pelagica, abundant, good size

Tubularia crocea, common, short stemmed, forming a hiding place and home for amphipods

Metridium abundant, medium to fair size

Balanus sp. abundant and many dead shells of same, not all identified at this time but seemed to be eburneus especially on Mytilus B. balanus, B. crenatus, B. balanoides

Saxicava ardtica, small to 15mm. many dead shells also.

Anomia aculeata, noted only one or two which took to be this sp. perhaps there might have been more had I been able to get way up inside but stench and heat deterred me. A number of other forms may have been found had the buoy been examined when fresh from the water.

Scale worms should have been here.

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SNOOT BUOY OFF NASHUEWENA (#4)V.S. Aug. 22, 1938

Many Mytilus edulis from a few mm. to 2 3/4 inches long. Around the lower edges of the large part (snoot) the mytilus were quite small, increasing in size as they grow towards the inner edge of the snoot. Abundant both inside and out of buoy.

Tubualaria crocea in fruit fairly well represented

Hydroid, species not determined (Thuirea?)

Bugula turrita, plentiful but "stringy"

Criseia eburnea common

Bryozoa, incrusting, shelly, common

Astyria lunata, plentiful

Grantia

Anomia simplex plentiful, and from small-10mm to large

Pallene

Halichondria

Crepidula fornicata mostly of large size 1½" long and plentiful

Eudendrium sp.

Lepidinotus squamata

Harmothoe

Petricola pholadiformis

Hydroides dianthus common on buoy

Amphipods, many very small

Pecten irradians, several from 1 5/8" long to 2 5/8" long, some of these were partly covered with Mytilus and Bugual̶a, holding them in their place.

Arca transversa, 10mm to 18mm wide, were common.

Panopeus sp. somewhat resembling the P. depressus, 2 spec.

Anachis avara, a number of specimens

Molgula, manhattensis, numbers, some of large size, one measuring 38x48mm more or less contracted, siphons not included in measurement

aug, 22-1938

Crepidula plana

Saxicava arctica, one small

Jassa marmorata

Nereis pelagica, not so many

Parasabella macropthalma, a few

Balanus sp., numerous individuals, crenatus?

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BUOY, [illegible]

[illegible]. 25, 1938

Mytilus, very many, about 2" long or less

Tubularia crocea, abundant, growing between the Mytilus clusters

Balanus sp. (balanoides?) vast number of dead shells, under the Mytilus, showing a very crowded condition. Some were 1 1/8 to 1½ inches tall, slim in proportion.

Saxicava arctica

Astyris lunata, numbers

Harmothoe

Amphipods, numbers, small

Arca transversa, very small

Anomia aculeata, small

Anomia simplex,? small

Nereis pellagica, small

Neopanopeus tex.

* * *

SMALL BUOY FROM CANAL AUGUST 23, 1938

Mytilus edulis, abundant from 4mm up to 56mm, mostly smaller than 56mm.

Tubularia crocea, in some fruit, abundant

Balanus sp. mostly many dead shells

Neopanopeus tex., several

Lepidonotus squamatus

Harmothoe?

Botryllus on Tubularia stems

Astyris lunata, some

Molgula, one or two, very small

Anachus sinulis?

Amphipod, many very small

Mya, 2 small ones we think was sp.

Amphitrite?, one or more?

* * *

JUNE 16, 1939. HEN AND CHICKENS LIGHT BUOY.

This buoy was well scraped on the outside before I saw it, so there was little on it except in corners and crevices which had not as yet been fully cleaned. In these spots were numerous amphipode, scattered mytilus edulis below medium size Balanus sp. ½in. or more across. Near the top were growing several species of Algae, greens and browns.

Bryozoa, shelly encrusting kinds. Tubularia crocea common.

Inside the tube cylinder were numerous bunches or clusters of Tubularia crocea in rich fruiting condition.

Balanus sp. very small were scattered profusely over the inside.
Now and then a larger specimen ½ to ¾in.? across.
Bryozoa in patches (encrusting kind).
Mytilus edulis as on the outside, not abundant.
Sponge in patches, spreading and rising at intervals , an inch or so above and the rest in little volcano like bluntly rounded peaks.
Probably Halichondria sp.
Asterias vulgaris 1.
Asterias forbesii few.
Caprella sp. a number.
Bugula sp. small clusters, probably turrita.
Crissia eburnea?
Anomia sp. mostly small or young simplex numerous.
Anomia aculeata.
Amphipods several species abundant.
Jassa marmorata?

Balance of material to be looked over later (6-24 1939)

No. 1

SEPT. 20, 1939. "SNOOT" BUOY. NANTUCKET CHANNEL. NEW PLACE.

A great many Mytilus. Outside and inside. They did not run up so far on the inside. Much more numerous and more thickly packed at the lower end. These were of varying sizes from 20mm. to 45mm. mostly between these sizes. Some 12mm. and smaller.

Patches of Crepidula fornicata. Were quite plentiful. The largest ones over 40mm. long. Most of them were toting smaller ones on their backs.

Anomia glabra was more or less common up to 30mm. long. Small C.fornicata were growing on the Mytilus.

A few Asterias forbesii 4" across were noted.

Several clusters of Bugula turrita were prominent, and several clusters of Amaroucium constellatum were growing on the inside of the Buoy snoot.

Balanus sp. (Balanus eburneus) were plentiful especially on the inside upper end, where as usual they preempted the greater part of the upper space.

Some fine Lepidonotus squamatus were in among the Mytilus. I found one Nereis pelagica. Undoubtedly there were others.

A few bunches of Tubularia crocea were seen.

A few bunches of Pennaria tiarella were seen. These latter were well worn.

Noted some small Astyr~~i~~us lunata. Proved numerous.

Found one Pelia mutica, and clinging to the insides of the buoy among the Crepidula, Mytilus and Balanus, were a number of Mud Crabs, a species of Panopaeus? probably. They were inclined to a general purplish color. They looked different somehow from Neopanapeus. Will examine later. Varied in size.

No. 2.

Sept. 20 to 21, 1939. Snoot Buoy Nantucket Channel. New Place.

July. 13, 1937. Nun or Can Buoy.

Aug. 14, 1941. Tube Buoy, and large buoy, no tube.

SEPT. 20, 1939. "SNOOT" BUOY. NANTUCKET CHANNEL.

New Place.

Found one *Arcatransversa*.

Sept. 21, 1939. Next Day. Found 2 or 3 *Metridium dianthus*. One empty shell *Saxicava artica*.

Saw two very small *Caprella sp*.

A few small *Pinnotheres maculata*.

Hydroides also seen but evidently not abundant.

Specimens of *Cynthia Styela*, a few were noted.

Specimens of *Molgula sp*. a few were noted. These seemed quite a little harder than *M.manhattensis*.

Found one spec. *Anachis Similis*. I took it for this species. It was not *A. Avaris*.

There may have been more individuals of species mentioned if one had gone over the whole buoy, but it was not possible in the time I had to give to it. A shell, like *odostornia seminuda*. A pale flesh colored worm reminding of *terrebellia*. A pale flesh colored worm or part of worm undetermined. Very small *Caprella* among the *Bugula*.

SEPT. 21, 1939. LIST OF SPECIMENS BROUGHT IN ON "SNOOT BUOY FROM OFF GAY HEAD.

Brought in Sept. 21, 1939. a peculiar shaped buoy, the lower end of the "snoot". Had a fairly small opening but about a foot or more suddenly enlarged. *Mytilus* and mud were in the greatest abundance. *Mytilus* of good size from 20mm. up to 73mm. but did not extend much into the wider part.

Asterias vulgaris, from quite small up to several inches across diameter.

Metridium. A number.

Amphipods. Numerous , several species.

Caprella.

Crissia eburnea.

Tubularia crocea. Small scattered bunches at lower end.

Nereis pelagica. Abundant, mostly of good size.

Lepidonotus squamata. A number.

Balanus sp. Plentiful.

Phyllodice sp.? Numerous.

A small red worm unknown to me having tentacles like amphitrite.

Many old stalks of *Tubularia* and some new just starting.

Very small ♀ crab, like *Pin: maculata*.

Seminuda.

1 Pallene (Pycnogonid)

WHISTLING BUOY WASQUE SHOAL. MUSKEGET.

Brought in June 14, 1940. scraped from outside of Buoy, by the Crew and saved for me. Lots of stuff dead.

Lepidonotus

Nereis pelagica, many.

Mytilus, small. (2mm. to over 40mm. and 60mm.)

Balanus, many.

Caprella, Many.

Amphipods, small, many.

Cancer borealis, small, many.

Crepedula fornicata.

Tubularia, number of short bunches. *T. crocea*.

Metridium dianthus, number small, ½ to ¾ in.

Saxicava arctica.

Jassa marmorata, plenty.

Aeolis sp. probably *papillosa*.

Other worms sp.?
From outside of buoy.

BELOW LIST FROM INSIDE OF BUOY.

Large *Mytilus* up to 60mm. covered with small *balanus*.

Mixed in and under the *Mytilus* were great numbers of *Saxicava arctica*, up to 20mm.

Aeolis sp.

Caprella sp.

List not completed.

JULY 18, 1940

POLLOCK RIP TUBE BUOY #6

Been out one year.

This was brought in the night of the 17th. The outside had been well scraped before being brought in. Practically all specimens obtained were from inside the "snoot" or tube.

Mytilus edulis abundant 2½mm. to 5 or 6mm to 50mm. or longer.

Saxicova arctica plentiful, 15mm. average. Some much smaller. Some larger.
Anomia aculeata. Some.

Nereis pelagica. Plentiful up to about 12cm. long.

Lepidonotus aquamatus, Plentiful, small to medium.

Harmothoe sp. Some.

Phyllodice? sp. Some.

Caprella sp. Abundant, small.

Cancer borealis, small, fairly common. Size from 10mm. to 50mm. wide
Very fuzzy.
Balanus sp. A few small; possibly other and larger had been on the outside of buoy.
Spirontocaris sp? One specimen I took to be this species. Later a few more, were noticed.
Eudendrium sp. one cluster covered with a species of Bryozoa, Hippothoa hyalina, on the stems. No other hydroids observed tho' it is quite likely that
Tubularia Crocea had been there.
Tubularia Crocea small clusters.

Amphipods plentiful and small species.

Jassa mamorata, some probably abundant when buoy was taken up.

Asterias forbesii abundant, small up to 4½ or 5 inches across ripe eggs and sperm.
Bryozoa, most seen was on stems of Eudendrium (Hippothoa hyalina)

Some small unidentified worms.
One small green worm.

Mytilus pellucidus, a very few noticed.

"SNOOT" BUOY. CULTIVATOR SHOAL.

Been out one year. (July 24, 1940)

Brought in July 23, 1940.

Outside was well scraped before docking.

Lepas Hillii. Large one specimen.

Mytilus edulis, plenty on inside of Snoot from 8mm. to 75mm. or larger.

Mytilus edulis, Pellucidus, a few.

Saxicava arctica. Saw one smallspecimen. May have been more but very scarce.

Anomia aculeata. Quite small and up to 10 or 12mm. across. Very plentiful among the mytilus and encroched on by byssus of mytilus.

Anomia simplex. Possibly a few which seemed to be this species. Young and about same size as a.aculeata.

Dendronatus sp. A few small.

Tubularia crocea. Several bunches in fine fruit. Large Hydranths.

Tubularia couthouyi. A number of stalks but no fruit. The stalks or stems of what I think T.couthoyi were up to 35mm. tall and thicker and heavier than those of T.crocea, also they had more or less orange and yellow color, while T.crocea had light greyish stems and crowded in bunches. T.conthouyi were single and scattered all over the inside.

Obelia sp. abundant in patches on the underside of the top or bulge of the buoy.

Hydroid. Plume like or feather like, was scattered throughout, not abundant.

TUBE BUOY AND LARGE BUOY NO TUBE.

Brought in Aug. ~~17~~ 15, 1940. from Halfmoon Shoal.

The tubeless buoy had been well scraped before being brought to dock.

So all I got were what was left on underside which was mostly covered by:

Mytilus edulis lomm. 14mm. 24mm. 60mm. length. Buoy was out one year.

Crepid: fornicata, some.

Nereis pelagica.

Scale worms L. Squamata

Harmothe imbricata.

Balanus eburneus, small, some.

Stems of Tubularia crocea.

SMALL BUOY VINEYARD HAVEN

Cynthia in patches ½" to 3/4 " tall

Grantia clusters, not especially abundant

Amphipods galore diff. species

Jassa marmorata, common

Balanus eburneus plentiful and so crowded that they were tall and narrow, resembling crowded B. balanoides

Nereis pelagica, common

Tubularia crocea

Mytilus

Astyris lunata

Pholus gunnelus one

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